

REMARKS/ARGUMENTS

The present Amendment is in response to the Office Action having a mailing date of September 11, 2006. Claims 1-16 are pending in the present Application. Claims 1-10 have been withdrawn from consideration. Applicant has amended claims 11 and 16. Consequently, claims 1-16 remain pending in the present Application.

Claim 11 has been amended to recite that the thickness of the CoNiFe film is not more than one micron. Support for the amendment can be found in the specification, paragraphs 28, 29, and 31. Applicant has also amended claim 11 to recite that at least a portion of the coil resides between the poles. Support for the amendment may be found in Figure 5 of the present application. Applicant has also amended claims 11 and 16 to correct minor errors. Accordingly, Applicant respectfully submits that no new matter is added.

In the above-identified Office Action, the Examiner objected to the specification because of the title and an informality in the Abstract.

Applicant has amended the title to be "MAGNETIC RECORDING HEAD UTILIZING HIGH MAGNETIC FLUX SATURATION CoNiFe FILMS". Applicant has also amended the Abstract to remove one duplicated "hydroxymethyl-p-tolysulfone". Accordingly, Applicant respectfully submits that the Examiner's objections to the specification have been addressed.

In the above-identified Office Action, the Examiner also rejected claim 16 under 35 U.S.C. § 112, second paragraph. In particular, the Examiner noted that the term "the low perpendicular anisotropy field" did not have clear and/or positive antecedent basis.

Applicant has amended claim 16 to recite "a low perpendicular anisotropy field". Accordingly, Applicant respectfully submits that claim 16 is clear and definite.

In the above-identified Office Action, the Examiner rejected claims 11-13 under 35 U.S.C. § 102 as being anticipated by U.S. Patent Publication No. 2002/0155321 (Kawasaki).

Applicant respectfully traverses the Examiner's rejection. Claim 11 recites a magnetic recording head that includes first and second poles, a write coil at least a portion of which resides between the first and second poles, and a write gap residing between a part of the first pole and a part of the second pole. Claim 11 further recites that at least a portion of at least one of the first and second pole is plated using a plating solution including hydroxymethyl-p-tolylsulfone (HPT). Claim 11 further specifies that the plating solution is configured to such that the at least the portion includes a CoNiFe film having a high saturation magnetic flux density and having a composition of 50-70 weight percent of Fe and 3-8 weight percent of Ni. Thus, at least a portion of the first pole and/or the second pole includes a CoNiFe film having a high saturation magnetic flux density and a composition of 50-70 weight percent of Fe and 3-8 weight percent of Ni. Claim 1 further specifies that such a CoNiFe film has a thickness of not more than one micron.

The magnetic recording head recited in claim 11 includes a CoNiFe film having a composition of 50-70 weight percent of Fe and 3-8 weight percent of Ni as a portion of at least one the first and second poles. Consequently, the magnetic head recited in claim 11 may make use of CoNiFe films having a high B_{sat} , low coercivity, low anisotropy field and a substantially unaffected resistivity. Specification, paragraph 30. As a result, performance of the head may be improved. Furthermore, because the CoNiFe film(s) used in the magnetic head recited in claim 11 have thicknesses that do not exceed one micron, various issues may be avoided. In particular, delamination of the film and magnetostriction that may adversely affect performance might be avoided. Specification, paragraphs 28 and 29.

Kawasaki fails to teach or suggest the use of the recited CoNiFe film(s) having a maximum thickness of one micron in the pole(s) of a write head. Kawasaki describes magnetic recording heads that use CoNiFe films having similar compositions to those recited in claim 11. Kawasaki fabricates these CoNiFe films using a pulsed plating current and a plating solution different than that recited in claim 11. Kawasaki, paragraphs 37, 43-46, 181, and 191-197. However, Kawasaki fails to teach or suggest any upper bound for the thickness of these CoNiFe films. Despite a detailed description of the properties of the CoNiFe films, Applicant has found no mention in Kawasaki of any limitations on the thickness of the film. For example, Kawasaki describes properties such as the composition, surface roughness, and stress of the films, but fails to mention the films' thicknesses. See, for example, Tables 8-14 and paragraphs 40, 94, 118, and 139. Because Kawasaki fails to describe any maximum thickness for the CoNiFe films used, Kawasaki fails to teach or suggest the recited CoNiFe film as part of the first and/or second pole in a magnetic recording head.

Moreover, to the extent that Kawasaki teaches that the entire pole may be made up of a CoNiFe films, Kawasaki teaches away from the recited CoNiFe film of claim 11. Kawasaki specifically states that in some embodiments, the entire pole may be formed of the CoNiFe film. Kawasaki, paragraphs 133 (items 16 and 46) and 162 (item 55). See also, Kawasaki, paragraph 127. Applicant has found no mention in Kawasaki of a maximum pole thickness. Consequently, Kawasaki places no upper limits on the thicknesses of the CoNiFe films used. This is true despite Kawasaki's measurement of the film's stress in Tables 8-14. One of ordinary skill in the art will recognize that stress within a film may lead to delamination of the film. However, Kawasaki is devoid of mention of delamination issues due to stress or any other ill effects of CoNiFe films of any thickness. Consequently, to the extent that Kawasaki teaches that the entire pole can be formed

from a CoNiFe film without regard to thickness of the pole, Kawasaki teaches away from the recited CoNiFe films.

For the above identified reasons, Kawasaki fails to teach or suggest the use of the recited CoNiFe film in a magnetic recording head. Consequently, Kawasaki fails to teach or suggest the magnetic recording head of claim 11. Accordingly, Applicant respectfully submits that claim 11 is allowable over Kawasaki.

Claim 12 depends upon independent claim 11. Consequently, the arguments herein apply with full force to claim 12. Accordingly, Applicant respectfully submits that claim 12 is allowable over Kawasaki.

The Examiner also rejected claims 14-16 under 35 U.S.C. § 103 as being unpatentable over Kawasaki.

Claims 14-16 depend upon independent claim 11. Consequently, the arguments herein apply with full force to claims 14-16. Accordingly, Applicant respectfully submits that claims 14-16 are allowable over Kawasaki.

Moreover, claims 15-16 are separately allowable over Kawasaki. Claims 15-16 recite specific perpendicular anisotropy fields for the CoNiFe films. Applicant has found no mention in Kawasaki that specific low perpendicular anisotropy fields are desired or possible to achieve in the CoNiFe films of Kawasaki. This is despite Kawasaki's description of other characteristics of the CoNiFe films of Kawasaki in, for example, Tables 8-14 of Kawasaki. Consequently, Kawasaki fails to teach or suggest specific low perpendicular anisotropy fields for the CoNiFe films used in the heads of Kawasaki. Accordingly, Applicant respectfully submits that claims 15-16 are separately allowable over Kawasaki.

Applicant's attorney believes that this application is in condition for allowance. Should any unresolved issues remain, Examiner is invited to call Applicant's attorney at the telephone number indicated below.

Respectfully submitted,

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Date

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